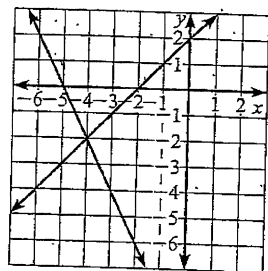


# Chapter 3

## Linear Systems

For Exercises 1 and 2, use the graph shown below.



1. What is the estimated solution of the linear equations graphed?

A.  $(-5, 0)$

B.  $(0, 2)$

C.  $(-4, -2)$

D.  $(-2, 0)$

3. Solve the system using the substitution method.

$$3x - 4y = 1$$

$$-2x + y = -14 \rightarrow y = 2x - 14$$

$$3x - 4(2x - 14) = 1$$

$$3x - 8x + 56 = 1$$

$$-5x = -55$$

$$x = 11$$

$$y = 2(11) - 14$$

$$y = 8$$

4. Solve the system using the elimination method.

$$6x + 5y = 2$$

$$-2(3x + 4y = 7)$$

$$6x + 5y = 2$$

$$-6x - 8y = -14$$

$$-3y = -12$$

$$y = 4$$

$$6x + 5(4) = 2$$

$$6x = -18$$

$$x = -3$$

5. A painter bought a total of 8 containers of paint for \$146. The gallon-sized containers cost \$22 each and the quart-sized containers cost \$12 each.

a. Write a system of equations to model the number of each container size the painter bought.

$$\begin{aligned} g + q &= 8 \\ 22g + 12q &= 146 \end{aligned}$$

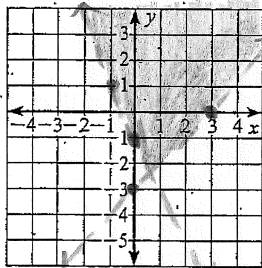
b. How many gallon-sized containers were bought?

$$\begin{aligned} -22g + -22q &= -176 \\ 22g + 12q &= 146 \\ \hline -10q &= -30 \\ q &= 3 \end{aligned}$$

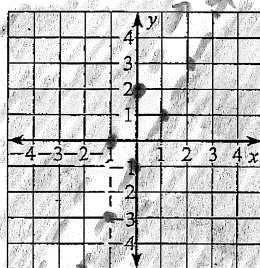
5 gallon sized  
3 quart sized

For Exercises 6 and 7, sketch a graph of the system of inequalities.

6.  $x - y < 3$   
 $2x + y > -1$



7.  $2x - y < -2$   
 $y \leq 2x - 1$



no solution